Geological Technics Inc. _____

Report

Risk Evaluation
&
Appendix B
Site Closure Checklist

City of Escalon
Former Arco Gas Mini Mart
1305 Escalon Ave.
Escalon, CA

Project No. 750.2
May 16, 2005

Prepared for:
Mr. Doug Stidham
City of Escalon
Engineering & Public Works
P.O. Box 248
Escalon, California 95320

Prepared by:
Geological Technics Inc.
1101 7th Street
Modesto, California 95354
(209) 522-4119

Geological Technics Inc.

1101 7th Street
Modesto, California 95354
(209) 522-4119 / Fax (209) 522-4227

May 16, 2005

Project No.: 750.2
Project Name: City of Escalon (Former Arco)

Mr. Doug Stidham
City of Escalon
P.O. Box 248
Escalon, California 95320

Report: Site Characterization, Risk Evaluation and Appendix B Site Closure Checklist
Location: Former Arco Gas Mini Mart, 1305 Escalon Ave, Escalon, CA

Dear Mr. Stidham:

Attached is a Risk Evaluation and Appendix B Site Closure Checklist as required by the RWQCB-CVR for site closure. The Appendix B Report addresses the investigation of the extent of soil and groundwater containing petroleum hydrocarbons sourced from a former underground storage tank and/or associated plumbing located at 1305 Escalon Avenue, Escalon, California.

If you have any questions or need additional information, please contact me.

Respectfully Submitted,

Raynold Kablanow II

Digitally signed by Raynold Kablanow II
DN: CN = Raynold Kablanow II, C = US, O = Geological Technics, Inc.
Reason: I am approving this document
Date: 2005.05.20 08:21:46 -07'00'

Raynold I. Kablanow II, Ph.D.
Vice President

cc: Lori Duncan – SJC PHS/EHD
Jim Barton - CRWQCB-CVR

TABLE OF CONTENTS

FIGURES

APPENDICES

Geological Technics Inc.

1101 7TH Street
Modesto, California 95354
(209) 522-4119 / Fax (209) 522-4227

Risk Evaluation
&
Site Closure Checklist

City of Escalon
Former Arco Gas Mini Mart
1305 Escalon Ave.
Escalon, CA

Project No. 750.2
May 16, 2005

1.0 INTRODUCTION

The site is located at 1305 Escalon Ave, Escalon, California in the Highway 120/McHenry Avenue Improvement Project. Figure 1 is a vicinity map and Figure 2 is a site map. This property was previously an Arco Gas and Mini Mart.

Previous work at this site, performed between 1996 and 1999, includes two limited soil borings, soil sample analysis, and the removal of the USTs and pump islands. During removal activities, soil samples were collected which showed the presence of BTEX, TPH-G and MTBE.

On February 12 and 23, 1999 Geological Technics Inc. (GTI) drilled six boreholes, collected soil and groundwater samples (including one groundwater sample from each borehole via hydropunch methods) and tested these samples for petroleum hydrocarbons. Analytical results show the presence of BTEX, TPH-G and oxygenated fuel compounds in the soil and groundwater.

From April of 1999 through January of 2000 three groundwater monitoring wells and four vapor extraction wells were installed on the site. Soil samples collected during the drilling of these wells show low to moderate levels of BTEX, TPH-G, MTBE and TBA in MW-1. Low levels of MTBE were detected in MW-2. Soil samples collected from VEW-1 showed low levels of Xylene and MTBE.

On June 12, 2000, GTI and Del-Tech Geo Technical (Del-Tech) performed a vapor extraction pilot test at the site. Laboratory and field test results indicate the site is conducive to remediation by vapor extraction.

On June 12, 2000, Ms. Lori Duncan of San Joaquin County Environmental Health Department (SJCEHD) requested in writing that a work plan be prepared to define the lateral and vertical extent of the groundwater plume at the site. On June 29, 2000, GTI prepared a work plan proposing the installation of two water table monitoring wells and one deep, discretely screened monitoring well. Ms Duncan approved the work plan on July 7, 2000. The work was performed during the week of October 16, 2000.

On January 30, 2001, GTI prepared and submitted the *Corrective Action Plan (Revised) Vadose Zone Remediation*. The CAP discusses GTI's proposed methodology for mitigation of the documented petroleum hydrocarbon contamination at the site by vapor extraction. The CAP also discusses the confirmation testing outlined in this work plan. Ms Duncan approved the CAP, as submitted, in a letter dated April 02, 2001.

In February 2002 the soil vapor extraction (SVE) system was initiated and has operated for approximately one year. On January 21, 2003, GTI submitted the *Vapor Extraction Treatment System Monitoring Report*. The report indicated that approximately 50% of the petroleum hydrocarbons contained in the subsurface have been removed, the groundwater at this site is free of petroleum hydrocarbon contamination, and possibly as much as 600 gallons of gasoline may remain in the vadose zone. The report also recommended that the site be considered for closure.

In a letter dated February 18, 2003, SJCEHD requested that the well extraction cycle be utilized to address lower screen intervals and that GTI may consider switching methods of contaminant destruction, such as changing to carbon canisters to lower operational costs.

On March 28, 2003, GTI submitted the *Additional Site Characterization – Soil Borings Work Plan*. Ms Duncan approved the work plan, with reservation, in a letter dated April 8, 2003. The soil borings were advanced on September 5, 2003 and GTI submitted the resulting *Interim Soil Investigation Report* on October 2, 2003. As per the April 8, 2003 SJCEHD directive, the SVE system was restarted on December 9, 2003 and ran until January 14, 2004.

A new vapor extraction – granulated activated carbon (SVE-GAC) system was installed during the summer of 2004. The SVE-GAC was started on September 24, 2004 and ran until April 12, 2005. The SVE-GAC was not operational, due to repairs, for three weeks between December 2004 and January 2005.

2.0 HYDROGEOLOGIC SYSTEM

2.1 Regional Structure

The COE site is located in the northwest quarter, of the northwest quarter of Section 4, T2S, R9E, related to the Mount Diablo B&M, on the United States Geological Survey (USGS) topographic map, Escalon Quadrangle, California, 7.5 minutes series. A review of the USGS Topographic Map reveals that the elevation of this site is approximately 115-feet above mean sea level (AMSL).

The site is located on the gradually sloped floor of the northern San Joaquin Valley. The geologic composition of the area is characterized as fluvial deposits of the San Joaquin - Sacramento River delta system that overlay continental rocks and deposits derived from erosion of the Sierra Nevada Mountain Range located approximately 50 miles northeast of Modesto.

The southwest tilting Sierra Nevada fault block underlies the northern San Joaquin Valley area. Overlying the consolidated rocks are unconsolidated sediments. The lower consolidated batholithic and metamorphic rocks are poorly transmissive; however, the overlying sedimentary layers are often quite permeable. These unconsolidated layers include Pliocene/Pleistocene age continental deposits, Pleistocene age lacustrine and marsh deposits, and Holocene older and younger alluviums and flood-basin deposits.

2.2 Regional Stratigraphy

The following information comes from the United States Department of Agriculture – Soil Conservation Service (USDA). *Soil Survey of San Joaquin County, California* (1992) indicates the area surrounding the COE site is predominately made up of one general soil type:

- DELHI – VERITAS – TINNIN: A gentle 0 to 2 percent slope; moderately well drained to somewhat excessively drained, coarse textured and moderately coarse textured soils that are deep to a cemented hardpan or are very deep; on dunes, alluvial fans and low fan terraces.

The USDA *Soil Survey of San Joaquin County, California* (1992), states the area beneath the COE is categorized as Delhi loamy sand with the following description:

- Delhi loamy sand – 0 to 2 percent slopes. Very deep, somewhat excessively drained, nearly level soil on dunes. It formed in wind-modified alluvium derived from granitic rock sources. The average annual precipitation is about 11-inches, the average air temperature is about 60˚ F.

2.3 Site-specific Hydrogeology

2.3.1 Lithology and Soil Characteristics

- Top two feet of the site appears to be backfill materials comprised of gravel and sand
- Brown, poorly sorted, sand from 5 to 10 feet bgs, which overlies a dry, light brown, silt unit between 10 and 20 feet bgs
- The geology from 20 to 30 feet bgs consists of various layers of grey colored silt and sand
- The predominant geology between 30 and 45 feet bgs is comprised of a buff color, poorly sorted sand containing some clasts greater than 1 centimeter in size
- Grey silt and sandy silt layers were noted between 43.5 and 50 feet bgs
- Sand characterizes the 50 to 55 foot interval – buff and well sorted at 50 feet bgs grading down to brown and poorly sorted at 55 feet bgs

A site map showing the locations of streets, structures, wells, and other site-related details is attached as Figure 2.

2.3.2 Groundwater Bearing and Gradient

Groundwater bearing and gradient data has been collected since April of 2000. The historical groundwater information for the site is as follows:

- Average groundwater elevation is 56.71 AMSL
- Average depth to groundwater is 62.67 feet below grade
- Average bearing is N73°W
- Average gradient is 0.0019 ft/ft

2.3.3 Vertical Groundwater Gradient

The vertical gradient has been calculated using the MW-1/MW-101 pair. The vertical gradient is generally negative (a downward direction). However, it has been insignificant due to a near zero head difference between MW-1 and MW-101. The historical average vertical groundwater gradient is –0.0039 ft/ft.

2.3.4 Average Groundwater Velocity

The lithology at the COE site will be divided into four general layers for the purposes of calculating the average horizontal groundwater velocity (AHGV).

- Layer 1 consists of silts and sands from 5- to 30-feet bgs
- Layer 2 is primarily sand with some larger clasts from 30- to 45-feet bgs
- Layer 3 is primarily silt from 45- to 50-feet bgs
- Layer 4 is primarily sand from 50- to 70-feet bgs.

The average depth to groundwater at the site suggests only Layer 4 will contain groundwater in a saturated state. The following calculations are based on the following equation:

$$v = K\, i/n$$

where:

v is the average horizontal groundwater velocity (AHGV)
K is the average hydraulic conductivity
i is the average hydraulic gradient,
n is the effective porosity.

K and n values are estimated from tables in Groundwater and Wells 2nd Edition (Driscoll, F.G., 1986).

- The AHVG of Layer 1 is estimated to be approximately 0.065 to 6.5 ft/yr.
- The AHVG of Layer 2 is estimated to be approximately 5.7 to 2,850 ft/yr.
- The AHVG of Layer 3 is estimated to be approximately $5.6E10^{4}$ to 0.057 ft/yr.
- The AHVG of Layer 4 is estimated to be approximately 0.758 to 75.8 ft/yr.

3.0 APPENDIX B SITE CLOSURE CHECKLIST

3.1 Receptor Well Survey

A sensitive receptor survey was performed in August of 2000 encompassing a 2000-foot radius around the site. The following conclusions are discussed in the *Well Receptor Survey Report* – November 14, 2000:

- Two municipal wells (Escalon City Wells) were documented at distances greater than 1,600 feet.
- Escalon High School staff indicates that an irrigation well is present on the school property, but domestic use is provided by municipal water supply.
- Two DWR well logs are included for Fisk Avenue. The addresses of these residences' could not be confirmed, however all of the residences in the area are serviced by City of Escalon municipal water supply. If these two wells still exist, they are probably not used for drinking water purposes.

3.2 Non-Contamination Maps and Cross-Sections

Figure 1: Vicinity Map – showing roads, highways and waterways adjacent to the property.
Figure 2: Site Map – showing buildings, roads, lines of section, monitoring well locations, soil boring locations, former dispenser and former tank locations.
Figure 3: West to East Lithological Cross-Section (A-A') – showing subsurface features and lithology.

Figure 4: North to South Lithological Cross-Section (B-B') – showing subsurface features and lithology.
Figure 5: Groundwater Elevation Contour (February 16, 2005)
Figure 6: Rose Diagram – showing historical groundwater elevations, gradients and bearings.

3.3 Tabulated Groundwater Elevations, Gradient and Bearing

Historical groundwater elevations, gradients and bearings are summarized on Table 1 of Appendix A. The average groundwater bearing is N73°W with an average gradient of 0.0019 ft/ft.

Vertical groundwater calculations are summarized on Table 2 of Appendix A. Vertical gradients are historically negative and approximately one order of magnitude less than the horizontal gradients.

3.4 Tabulated Analytical Data

Table 3: Summary of Soil Analytical Data from Tank and Trench Samples
Table 4: Summary of Soil Analytical Data – Soil Borings and Monitoring Wells
Table 5: Summary of Historical Groundwater Analytical Data
Table 6: Summary of Historical Groundwater Parameters
Table 7: Mass Balance Calculations (2001)
Table 8: Mass Balance Calculations (2005)
Table 9: Summary of TPH-G Removed by Internal Combustion System
Table 10: Summary of TPH-G Removed by Soil Vapor Extraction & Carbon Filtration

3.5 Contamination Contours and Cross-Sections

Figure 7: Site Map with Soil Excavation
Figure 8: Soil Contamination Contour (TPH-G) showing Lines of Section used in Soil Plume Cross-Sections
Figure 9: Soil Plume (TPH-G) Cross-Section C-C'

3.6 Contaminant Mass Estimate Calculations

<u>2001 Mass Estimate</u>
A preliminary contaminant mass estimate calculation was performed and submitted in GTIs: *Revised Corrective Action Plan – Vadose Zone Remediation* dated February 26, 2001. The February 2001 report estimated approximately 1,600 gallons of TPH-G was present in the soil at the site (Table 7). These calculations were very liberal using thickness of 25-feet to calculate mass. October 2003 soil investigation activities suggest the heaviest contaminated zone is likely 15-feet thick.

2003 Mass Estimate

Still being liberal, recalculating the original mass using a 20-foot thick zone of heavy contamination suggests that, prior to vapor extraction activities, there was approximately 1,248 gallons of TPH-G present in the soil at COE. Analytical results from soil borings advanced during the October 2003 soil investigation suggest that the contaminant concentrations have been greatly reduced.

The October 2003 soil samples suggest that soil vapor extraction and natural attenuation have been effective at the site. Vapor extraction remedial activities have removed approximately 1,013 gallons of TPH-G from the site as discussed in Section 3.7. If we assume that 10% of the original estimate has undergone natural biodegradation, this would account for an additional 124.8 gallons of TPH-G removed. These calculations suggest a total of 1,138 gallons of TPH-G has been removed and approximately 110 gallons remain in the soil. The calculation suggests approximately 90% of contaminant mass has been removed since site investigation activities began in 1996.

2005 Mass Estimate

After several years of remedial activities at the COE site, the revised contaminant mass estimated calculations show approximately 56 gallons of TPH-G remain in the soil (Table 8).

Figure 8 shows the soil contamination plume and a "mass balance" line of section. Figure 9 shows a cross sectional view of TPH-G contamination remaining at the site using the following information and assumptions:

- The plume is divided into three contamination zones.
- Each zone is assumed to be roughly cylindrical in shape.
- Concentrations in the zones are an average of samples collected from those zones.
- Area is determined by map view (Figure 8).
- Thickness is based on soil analytical data and shown in Figure 9.
- Assumes October 2003 contamination concentrations have been reduced by 50%.
- Assumes soil contamination detected between 1996 and 1999 has been reduced by 75%.
- Contamination has not impacted groundwater.
- 100 cubic yards of soil removed from the plume area during tank and dispenser removal activities. Actually a total of 270 cubic yards were removed but only 100 cubic yards was removed from the area of the plume footprint (Figures 7 & 8).

The following items likely reduce the mass of contaminants at the site. However, contaminant mass estimate calculations do not include:

- Aeration of intermediate to deep subsurface by staggered well extraction methods.
- Aeration of surface and shallow subsurface during trenching activities.
- Soil removed during the installation of 641 feet of monitoring and extraction well casing

- Soil removed during the advancement of 650 feet of soil borings

Elevated MtBE levels were detected in the shallow lithology near MW-1 and HP-1 during the 1999 boring and well installation activities. MtBE concentrations from these two sample points attenuated rapidly with depth. The October 2003 soil boring in the same area showed no MtBE remaining in the area. Very low levels of MtBE were detected in the vicinity of HP-5 during the 1999 soil and groundwater investigative activities. The October 2003 soil boring in the same area showed no MtBE remaining in the area.

3.7 Remedial Technologies

An Internal Combustion (IC) system was in operation between February 2002 and January 2003. The IC ran for approximately 290 days and removed about 707 gallons of TPH-G from the vadose zone (Table 9).

A Soil Vapor Extraction and Granulated Activated Carbon (SVE/GAC) system was installed during September 2004 and operated for approximately 183 days during which time about 306 gallons of TPH-G were removed (Table 10).

Approximately 270 cubic yards of soil was removed during tank excavation activities. Approximately 30 cubic yards of soil have been removed as drill cuttings during the installation of monitoring wells, vapor extraction wells, soil borings and GeoProbe boreholes. Additional soil has been removed or aerated during trenching and remedial equipment installation activities. Approximately 500 gallons of contaminated groundwater per year are removed from the site during the development, purging and sampling of groundwater monitoring wells.

This volume of soil cuttings and groundwater removed during investigation activities as well as soil aeration during trenching activates were not used to reduce the mass estimate of contaminants remaining at COE. However, this is additional evidence of the over-cautious nature of the mass estimate calculations.

3.8 BAT

Since the tank and the primary soil contamination source have been removed, eventually background conditions will be achieved in the soil and groundwater at the site. Excavation of the soil surrounding the former USTs and removal of soil boring cuttings were technologies employed to remediate the contamination detected at COE.

Soil vapor extraction methods were employed at the site for approximately 473 days and resulted in the removal of approximately 1,013 gallons of TPH-G from the vadose zone.

3.9 Stockpiled Soil

No stockpiled soil relating to the former underground storage tanks is stored on this property.

3.10 Monitoring Wells

Five (5) water table and one (1) deep monitoring well as well as four (4) vapor extraction wells are associated with this site and a well construction summary is included as Table 11. Upon issuance of a "No Further Action" letter from the CRWQCB, the monitoring and vapor extraction wells will be properly abandoned under a SJCEHD permit.

Boring logs not used in generating this report may be found in:

- GTI: *Soil and Groundwater Investigation Report* – March 15, 1999
- GTI: *Additional Site Characterization Report* – January 31, 2000
- GTI: *Additional Site Characterization Report* – January 30, 2001
- GTI: *Interim Soil Investigation Report* – October 2, 2003

3.11 Background Conditions

A water quality degradation analysis is summarized below in accordance with § 2550.4(d) of Title 23, California Code of Regulations, Chapter 15:

1) Potential adverse effects on groundwater quality and beneficial uses:
    A. The constituents of concern and average concentrations at the COE site include: The quarterly groundwater monitoring events have revealed that all monitoring wells at the COE site have been non-detect above laboratory reporting limits for all analyzed constituents for the last nine monitoring events.
    B. Hydrogeological characteristics of the facility and surrounding land are relatively uniform; characterized by alternating layers of sand, silt, and sand-silt mixtures. The details are discussed in Section 2.0.
    C. Groundwater bearing and slope average N73°W at 0.0019 ft/ft as discussed in Subsection 2.3.2. Groundwater velocity is estimated to be 0.758 to 75.8 feet per year as discussed in Subsection 2.3.4. Vertical groundwater gradient is mostly in the negative direction (downward) at 0.0037 ft/ft, which is similar as the horizontal gradient.
    D. There are no groundwater users within a 1,600-foot radius of the COE site as discussed in Section 3.1.
    E. According to the USDA *Soil Survey of San Joaquin County, California* (McElhiney, M. A., 1992); the soils below the site are very deep, somewhat excessively drained, nearly level soil on dunes with 0 to 2 percent slopes. The details are discussed in Subsection 2.2. It is not likely that potential future uses of groundwater in the area will be impacted.
    F. Background wells show similar pH, EC, ORP, DO and temperature readings to those recorded in wells near the contaminated zone. The source of

contamination has been removed and it is likely the site will return to background conditions via natural attenuation.

G. According to the USDA *Soil Survey of San Joaquin County, California* (McElhiney, M. A., 1992); the soils below the site are very deep, somewhat excessively drained, nearly level soil on dunes with 0 to 2 percent slopes. The potential for health risks caused by human exposure (dermal, ingestion or inhalation) is negligible due to unlikely contact with subsurface hydrogeology.

H. The potential for damage to wildlife, crops, vegetation and physical structures caused by exposure to contaminants is minimal due to the reasons discussed above in Section 3.11G.

I. The persistence and permanence of the potential adverse effects are finite. It is unlikely that humans or wildlife will come in contact with the residual contaminants. The contaminants have been steadily decreasing with remedial activities and time. Contaminants will likely attenuate to background conditions.

2) Potential adverse effects on surface water quality and beneficial uses:

A. Mass estimate calculations suggest there may be up to approximately 50 to 100 gallons of TPH-G remaining in the soil beneath COE. The surface areas on and near the site are capped by structures, base rock, concrete or asphalt. Impact to surface water is unlikely.

B. Hydrogeological characteristics of the facility and surrounding land are relatively uniform layers of sand-silt mixtures, sands and silts. The details are discussed in Section 2.0.

C. Groundwater bearing and slope average N73°W at 0.0019 ft/ft as discussed in Subsection 2.3.2. Groundwater velocity is estimated to be 0.758 to 75.8 feet per year as discussed in Subsection 2.3.4.

D. There are no groundwater users within a 1,600-foot radius of the COE site as discussed in Section 3.1. There are no surface waters within a 2,000-foot radius of the COE site.

E. According to the USDA *Soil Survey of San Joaquin County, California* (McElhiney, M. A., 1992); the soils below the site are very deep, somewhat excessively drained, nearly level soil on dunes with 0 to 2 percent slopes. The details are discussed in Subsection 2.2. It is not likely that potential future uses of groundwater in the area will be impacted.

F. It is unlikely surface water uses will change in the foreseeable future.

G. According to the USDA *Soil Survey of San Joaquin County, California* (McElhiney, M. A., 1992); the soils below the site are very deep, somewhat excessively drained, nearly level soil on dunes with 0 to 2 percent slopes. The potential for health risks caused by human, wildlife, crops or vegetation exposure (dermal, ingestion or inhalation) is negligible due to unlikely contact with subsurface hydrogeology.

H. Surface waters are at such a distance that the potential for health risks caused by human exposure (dermal, ingestion or inhalation) is negligible due to unlikely contact with subsurface hydrogeology.
I. The potential for damage to wildlife, crops, vegetation and physical structures caused by exposure to contaminants is minimal due to the reasons discussed above in Section 3.11 G.
J. The persistence and permanence of the potential adverse effects are finite. It is unlikely the contaminants will come in contact with surface waters. It is unlikely that humans or wildlife will come in contact with the contaminants.

3.12 Reports and Information

Unauthorized Release Form (URF), Quarterly Monitoring Reports and other correspondence are on file with SJCEHD and CRWQCB and are not included in this summary report. Additional investigative and characterization reports related to the COE site include:

- GTI: *Soil and Groundwater Investigation Report* – March 15, 1999
- GTI: *Additional Site Characterization Report* – January 31, 2000
- GTI: *Soil Vapor Extraction Pilot Test Report* – August 8, 2000
- GTI: *Well Receptor Survey Report* – November 14, 2000
- GTI: *Additional Site Characterization Report* – January 30, 2001
- GTI: *Revised Corrective Action Plan – Vadose Zone Remediation* dated Feb 26, 2001
- GTI: *Interim Soil Investigation Report* – October 2, 2003

3.13 Rationale

For the following reasons, the conditions at this site should not adversely impact water quality, public health, or beneficial use of this property.

<u>Site Conditions</u>

- No groundwater contamination has been detected in the last nine quarterly monitoring events.
- The contamination at the site is primarily soil contamination with the bulk being removed by vapor extraction and limited excavation activities.
- The USTs, dispenser islands and primary soil contamination source has been removed.
- There are no domestic, municipal or production wells within at least a 1,600-foot radius for any residual contamination to impact.
- There are no surface waters within at least a 2,000-foot radius for any residual contamination to impact.
- The soil is primarily a mixture of sands and silts. The small amount of remaining contamination will have a tendency to adsorb to the fine-grained silt units, thereby impeding vertical migration.

- The small amount of residual contamination will likely attenuate to background conditions.
- Portions of the site and adjoining properties not covered with buildings are covered with asphalt or compacted base rock (on-site), thereby limiting vertical migration via filtration.
- Groundwater quality parameters, including DO & ORP measurements, demonstrate that natural attenuation has been active at this site since contaminant release.

TPH-G Contamination

- An estimated 56 gallons of residual TPH-G contamination remain in the soil. This estimate does not include soil removed during investigation activities nor does it address natural attenuation.
- The February 16, 2005 groundwater-monitoring event reveals that all of the site's monitoring wells are non-detect above laboratory reporting limits.
- There are no sensitive receptors within at least 1,600-feet of the site
- Portions of the site and adjoining properties not covered by structures are capped by asphalt, compacted base rock or concrete making migration by infiltration unlikely

MtBE Contamination

- Historically, MtBE was only detected in one groundwater-monitoring well (MW-1). That monitoring well has been non-detect above laboratory reporting limits for MtBE over the last twelve consecutive quarterly groundwater-monitoring events.
- The most recent soil samples, collected during October 2003, showed no traces of MtBE above laboratory reporting limits.

4.0 LIMITATIONS

This report was prepared in accordance with the generally accepted standard of care and practice in effect at the time Services were rendered. It should be recognized that definition and evaluation of environmental conditions is an inexact science and that the state or practice of environmental geology/hydrology is changing and evolving and that standards existing at the present time may change as knowledge increases and the state of the practice continues to improve. Further, that differing subsurface soil characteristics can be experienced within a small distance and therefore cannot be known in an absolute sense. All conclusions and recommendations are based on the available data and information**.**

The tasks proposed and completed during this project were reviewed and approved by the local regulatory agency for compliance with the law. No warranty, expressed or implied, is made.

5.0 SIGNATURES AND CERTIFICATIONS

This report was prepared by:

Eric L. Price

Digitally signed by Eric L. Price
DN: CN = Eric L. Price, C = US, O = Geological Technics, Inc.
Reason: I am the author of this document
Date: 2005.05.20 08:20:13 -07'00'

_____

Eric L. Price
Geologist

Raynold Kablanow II

Digitally signed by Raynold Kablanow II
DN: CN = Raynold Kablanow II, C = US, O = Geological Technics, Inc.
Reason: I am approving this document
Date: 2005.05.20 08:20:42 -07'00'

Raynold Kablanow II, Ph.D.
California Professional Geologist #5234
Certified Hydrogeologist #442

Appendix A
Summary Tables

Appendix B
Laboratory Analytical Results

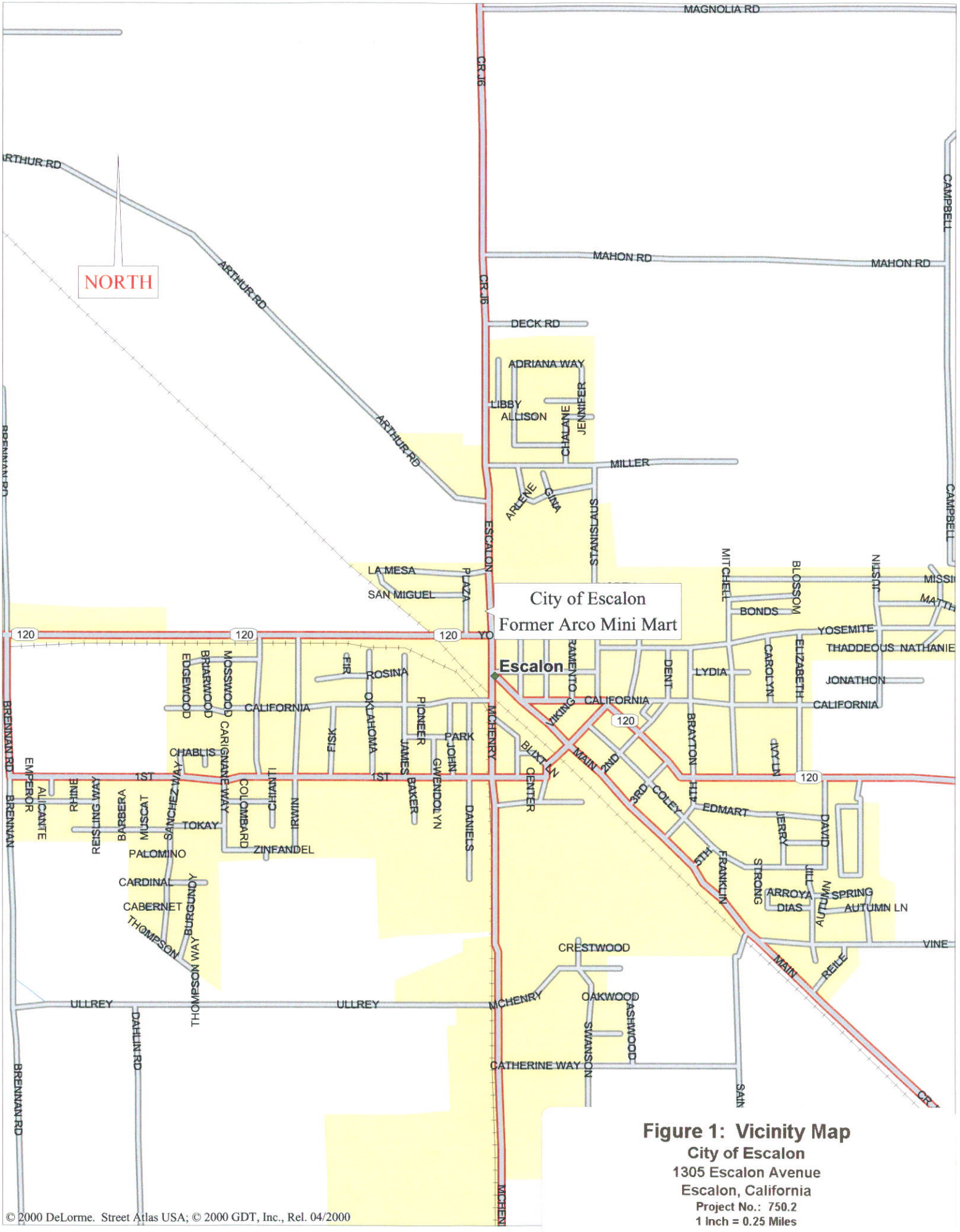


Figure 1: Vicinity Map

City of Escalon
1305 Escalon Avenue
Escalon, California
Project No.: 750.2
1 Inch = 0.25 Miles

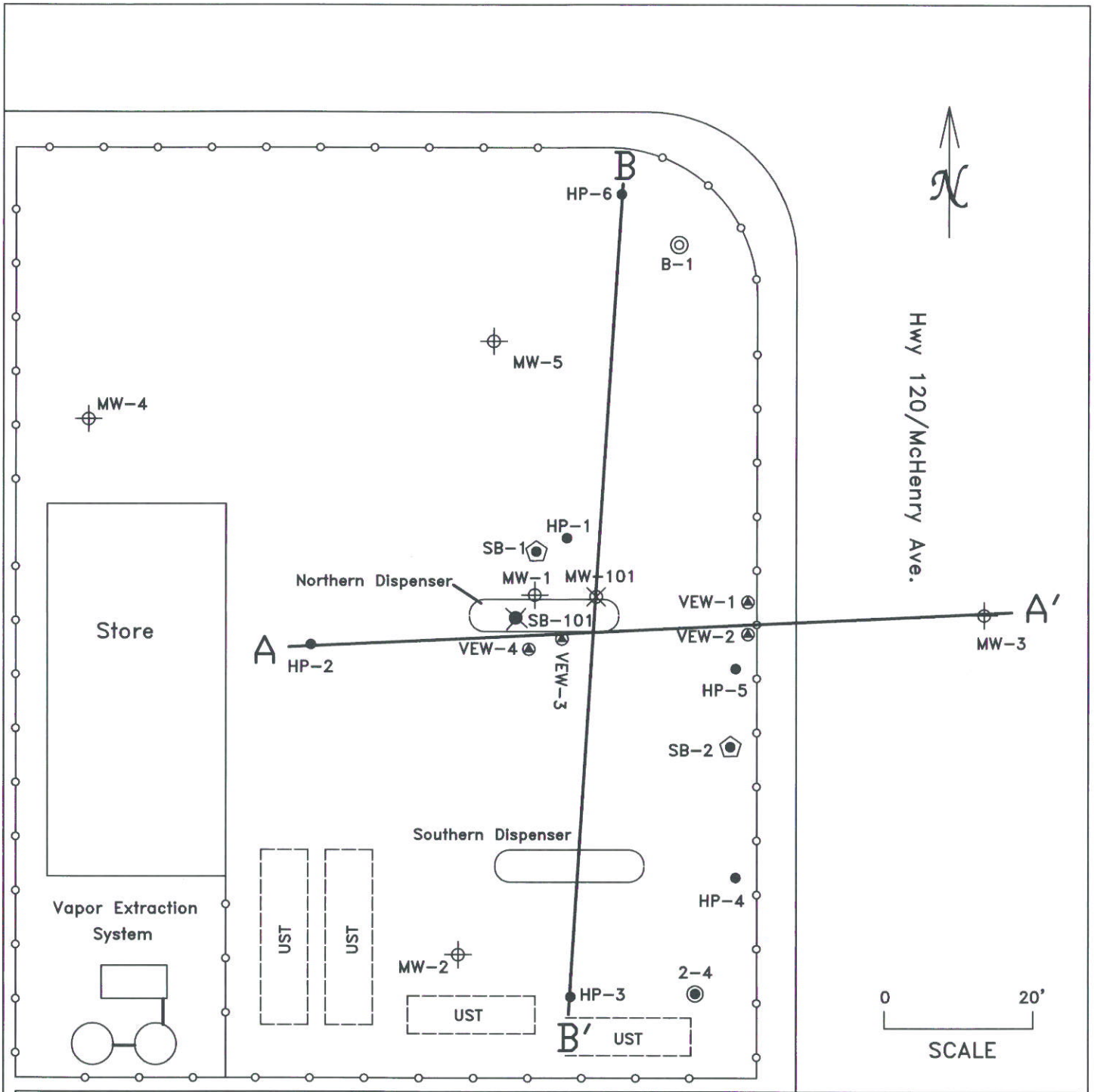


Fig 2: Site Map

City of Escalon
Former Arco Gas Mini Mart
1305 Escalon Ave.
Escalon, CA
Project No. 750.2

Geological Technics Inc. 4/28/05

LEGEND

- Soil Boring – June 1996
- Soil Boring – March 1997
- Soil Boring – February 1999
- Soil Boring – October 2000
- Soil Borings – September 2003
- Monitoring Well
- Vapor Extraction Well
- Dispenser
- Former UST

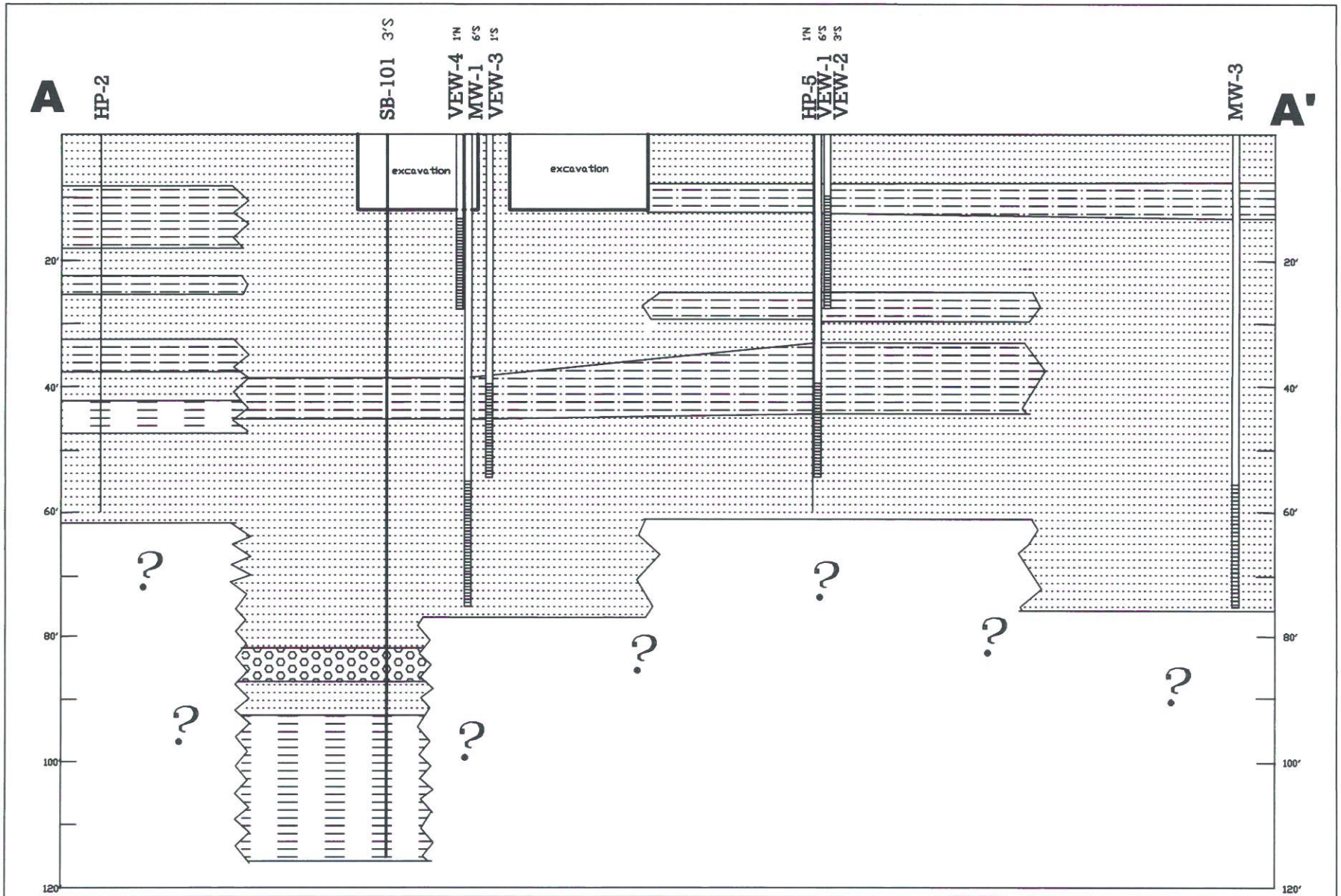


Fig 3: Cross Section A-A'

City of Escalon

Former Arco Gas Mini Mart

1305 Escalon Ave.

Escalon, CA

Project No. 750.2

Geological Technics Inc. 5/02/05

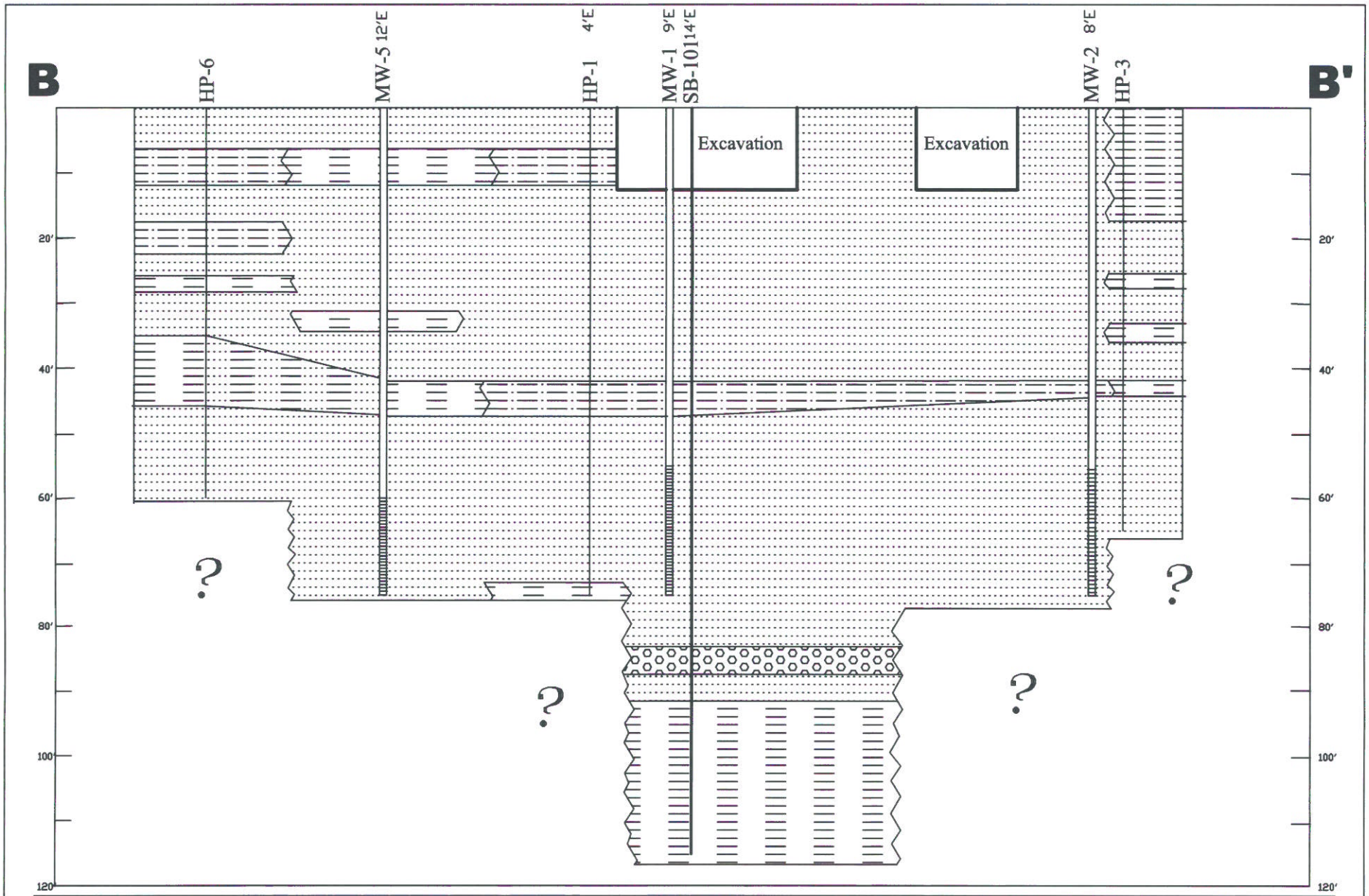


Fig 4: Cross Section B-B'

City of Escalon

Former Arco Gas Mini Mart

1305 Escalon Avenue
Escalon, CA
Project No.: 750.2

Gravels
Sand
Silt
Clay

Legend

MW-8 8'N = Boring projection onto cross section (distance/direction)

Scale

20'
0'
15'

Geological Technics Inc. 5/02/05

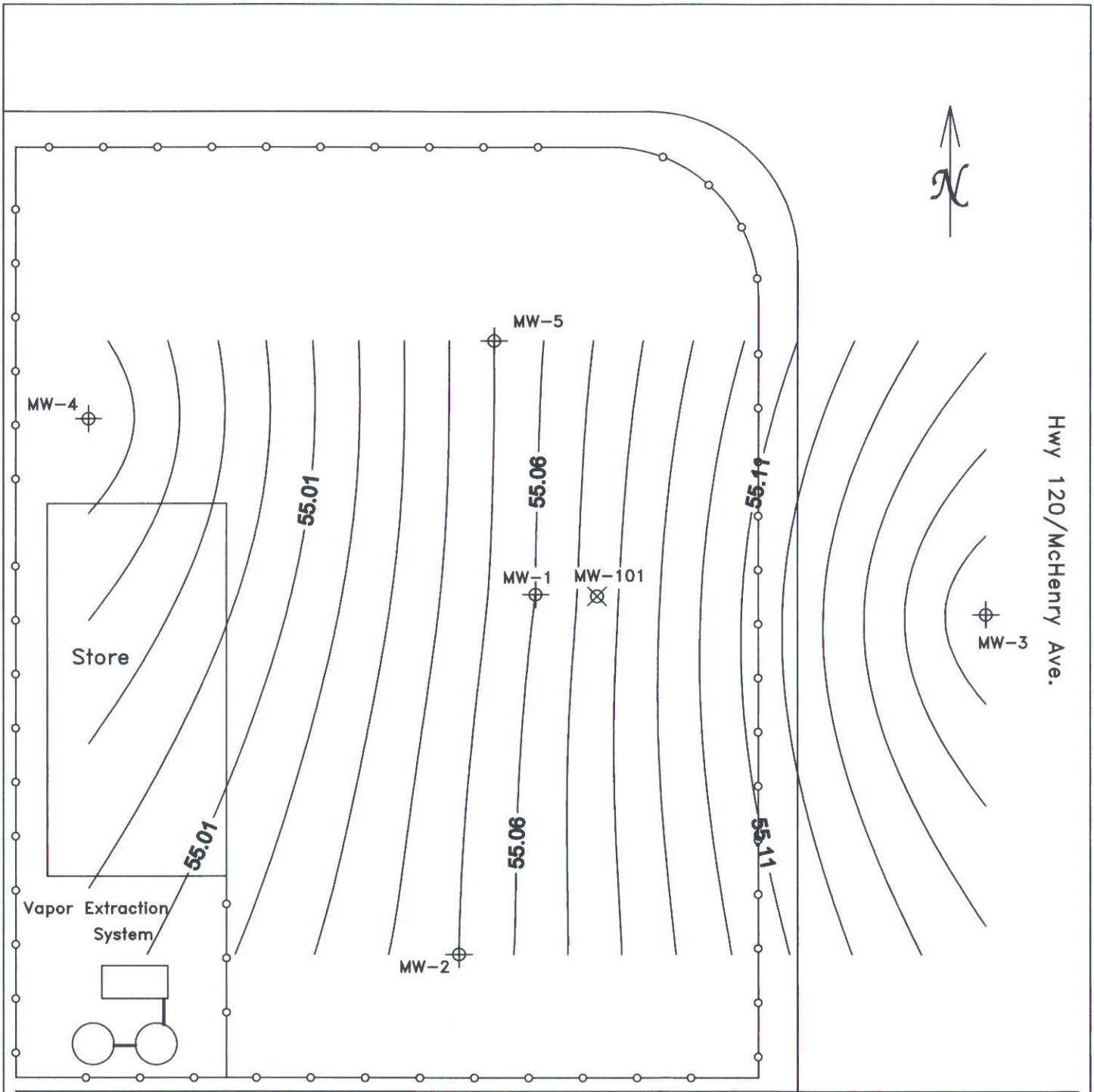


Fig 5: GW Elevation Contour

(February 16, 2005)

City of Escalon
Former Arco Gas Mini Mart
1305 Escalon Ave.
Escalon, CA
Project No. 750.2

Geological Technics Inc. 5/02/05

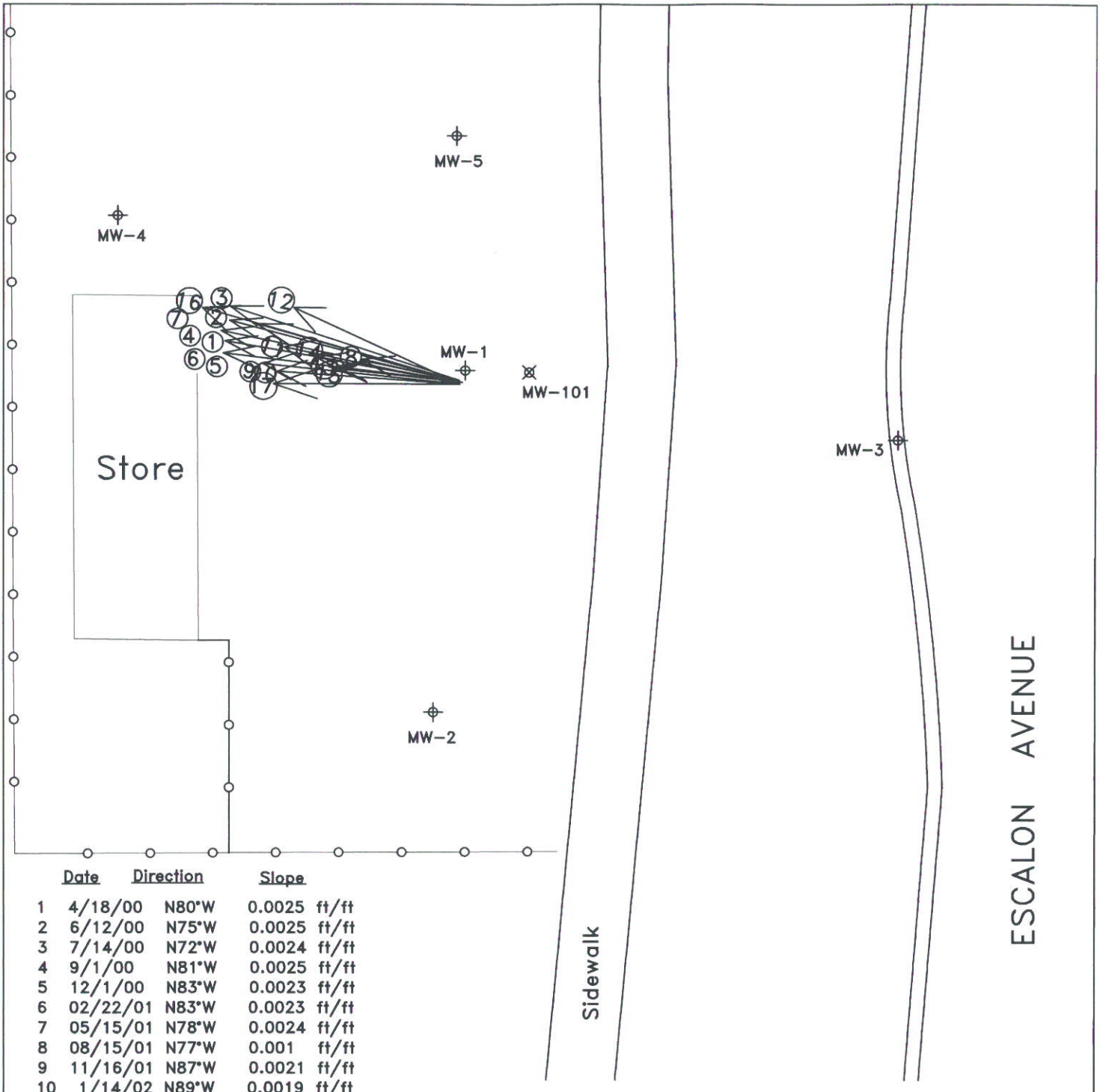
LEGEND

Monitoring Well

54.02 GW Elevation Contour Line

0 20'

SCALE



	Date	Direction	Slope
1	4/18/00	N80°W	0.0025 ft/ft
2	6/12/00	N75°W	0.0025 ft/ft
3	7/14/00	N72°W	0.0024 ft/ft
4	9/1/00	N81°W	0.0025 ft/ft
5	12/1/00	N83°W	0.0023 ft/ft
6	02/22/01	N83°W	0.0023 ft/ft
7	05/15/01	N78°W	0.0024 ft/ft
8	08/15/01	N77°W	0.001 ft/ft
9	11/16/01	N87°W	0.0021 ft/ft
10	1/14/02	N89°W	0.0019 ft/ft
11	3/14/02	N81°W	0.0018 ft/ft
12	6/28/02	N68°W	0.0019 ft/ft
13	9/23/02	N83°W	0.0013 ft/ft
14	12/30/02	N80°W	0.0015 ft/ft
15	03/06/03	N82°W	0.0012 ft/ft
16	06/05/03	N74°W	0.0026 ft/ft
17	09/06/03	N89°W	0.0020 ft/ft

Fig 6: Rose Diagram

City of Escalon
Former Arco Mini Mart
1305 Escalon Ave.
Escalon, CA

Legend

Monitoring Well

0 20'
SCALE

N

Geological Technics Inc.

5/02/05

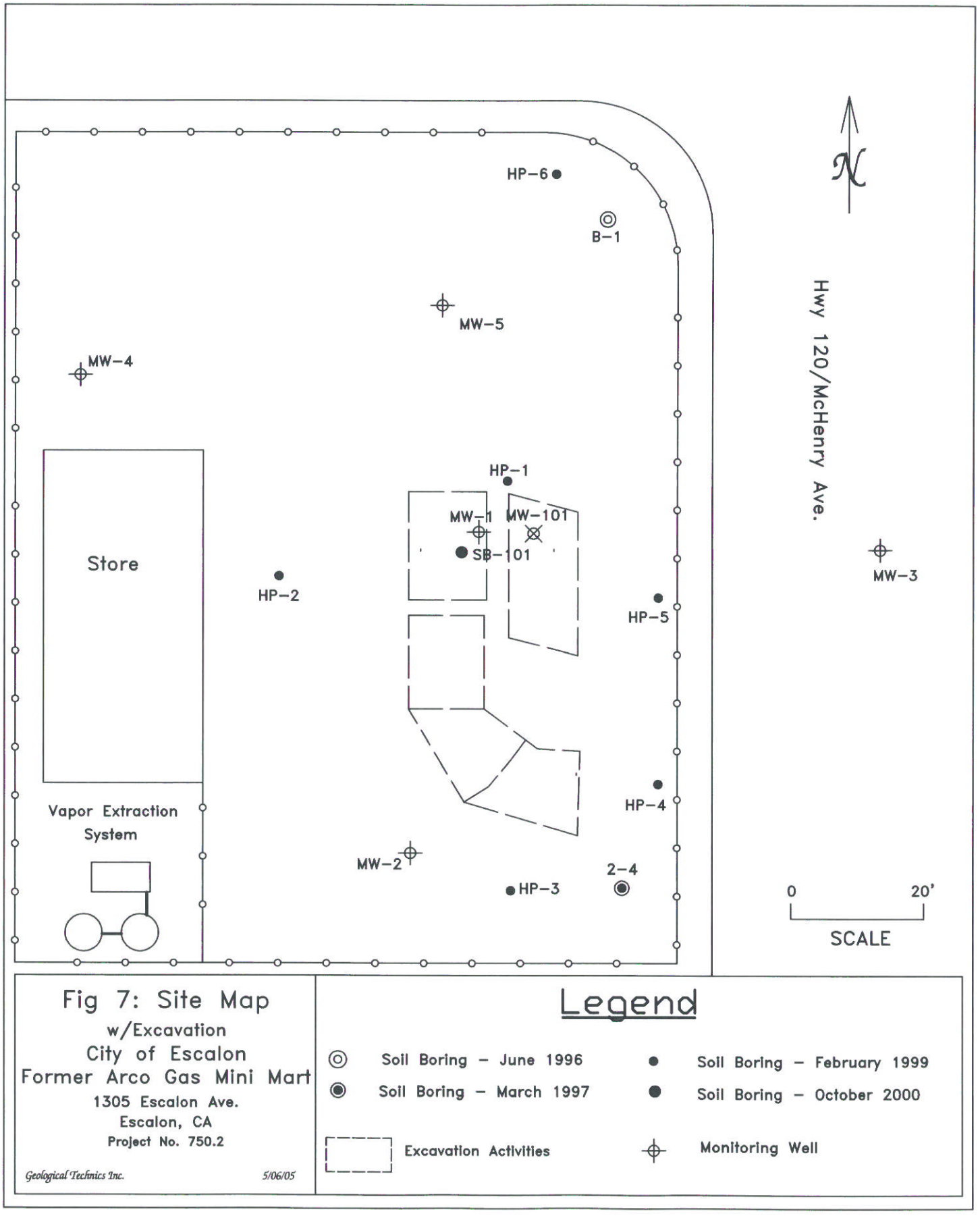


Fig 7: Site Map

w/Excavation

City of Escalon

Former Arco Gas Mini Mart

1305 Escalon Ave.

Escalon, CA

Project No. 750.2

Geological Technics Inc. 5/06/05

Legend

- Soil Boring – June 1996
- Soil Boring – March 1997
- Soil Boring – February 1999
- Soil Boring – October 2000
- Excavation Activities
- Monitoring Well

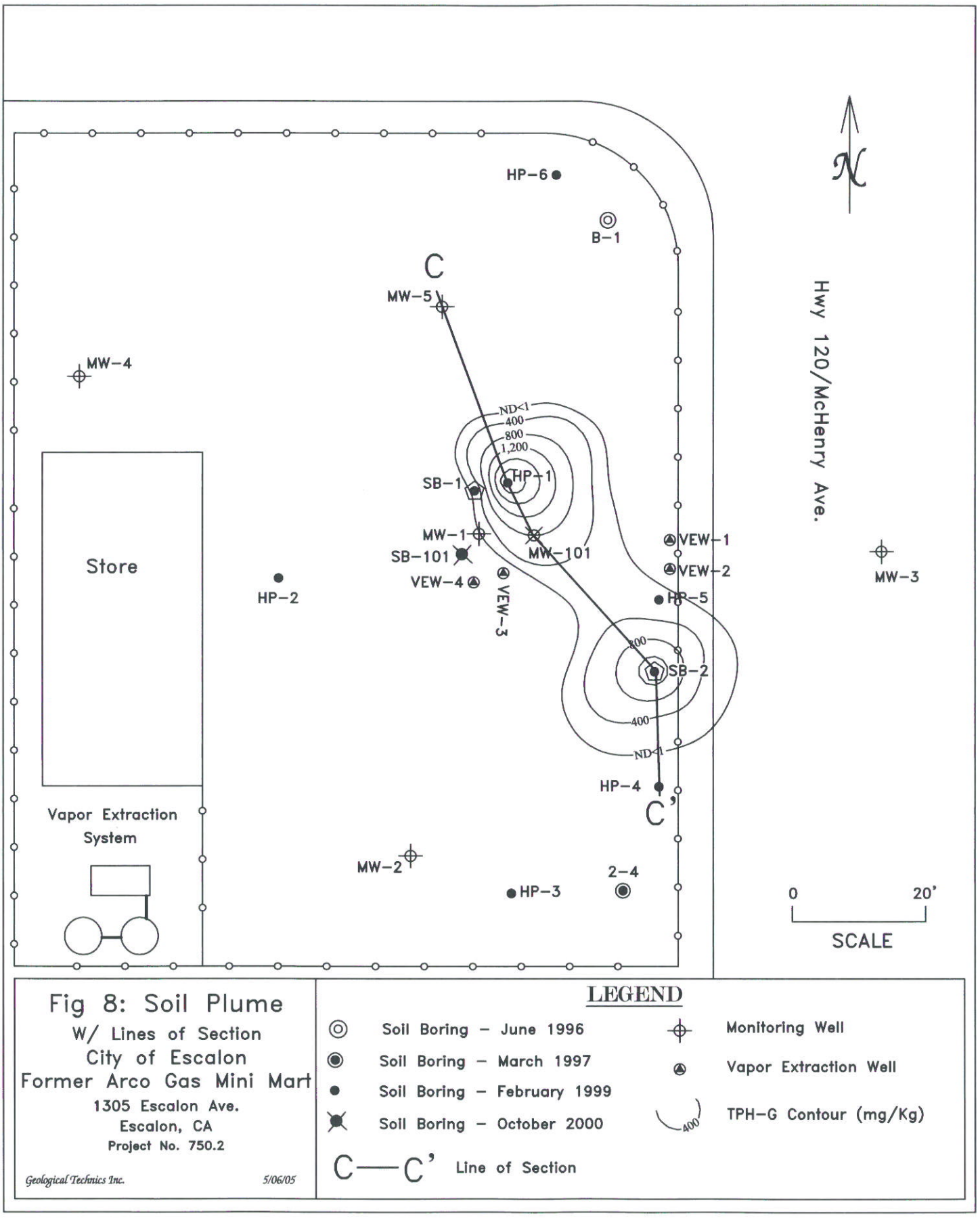


Fig 8: Soil Plume

W/ Lines of Section
City of Escalon
Former Arco Gas Mini Mart
1305 Escalon Ave.
Escalon, CA
Project No. 750.2

Geological Technics Inc. 5/06/05

LEGEND

- Soil Boring – June 1996
- Soil Boring – March 1997
- Soil Boring – February 1999
- Soil Boring – October 2000
- C—C' Line of Section
- Monitoring Well
- Vapor Extraction Well
- 400 TPH-G Contour (mg/Kg)

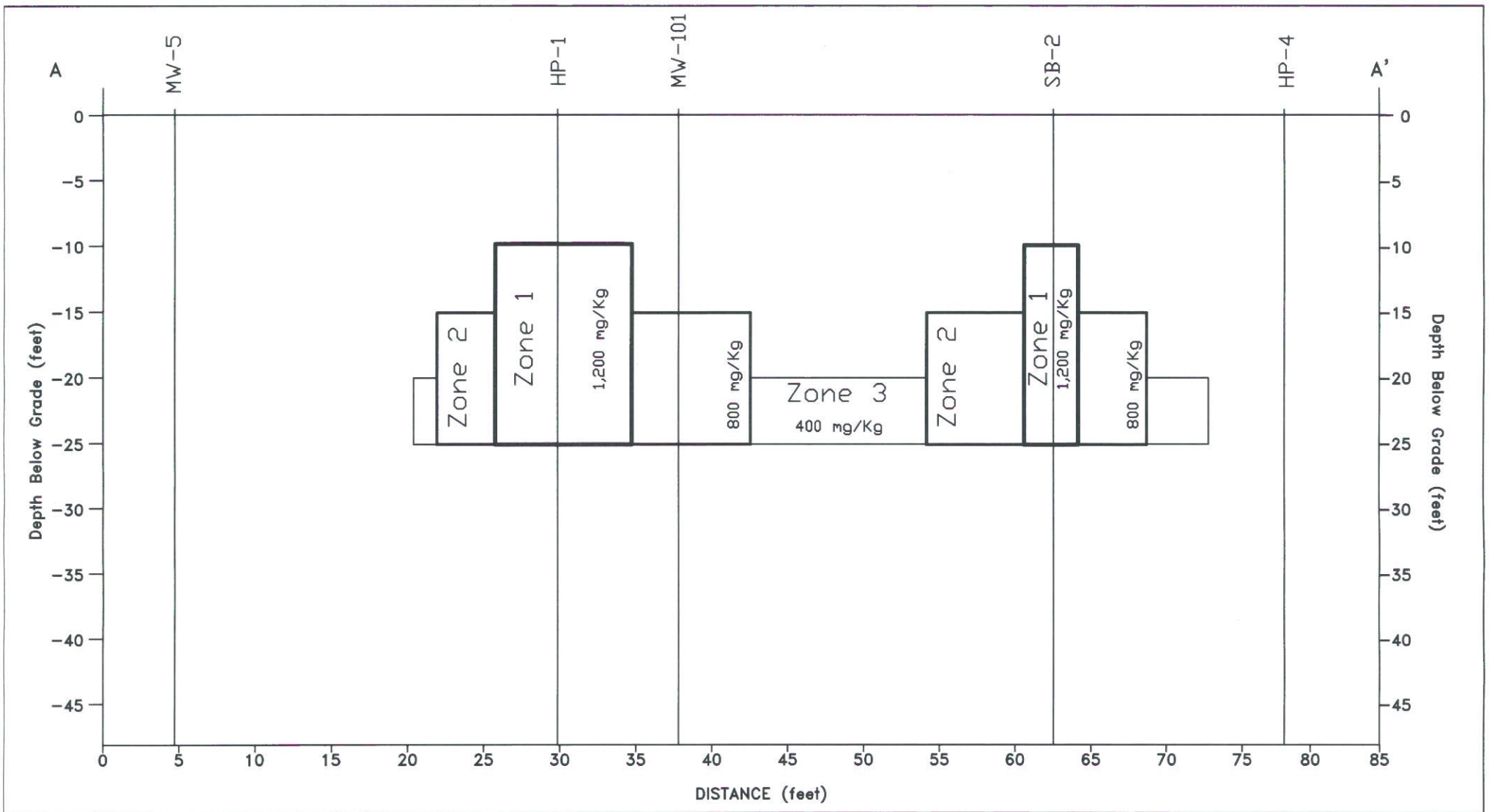


Figure 9:
Soil Contamination

Project No.: 750.2

City of Escalon
1305 Escalon Avenue
Escalon, CA

Cross Section C – C'

Contamination Cross Section

Geological Technics Inc. 5/06/05

TPH-G Concentrations

Zone 1 - Core of Plume (1,200 mg/Kg)
Zone 2 - 10 feet thick (800 mg/Kg)
Zone 3 - 5 feet thick (400 mg/Kg)

Refer to Table 8 for zone definition

Table 1: Summary of Groundwater Elevations, Gradients and Bearings

City of Escalon-Former Arco Mini Mart
1305 Escalon Ave.
Escalon, CA
Project No. 750.2

Date		Elevation of Groundwater *									
		MW-1	MW-2	MW-3	MW-4	MW-5	MW-101	Elevation	DTW	Gradient	Gradient
		GWL Elev.	GWL Elev.	GWL Elev.	GWL Elev.	GWL Elev.	GWL Elev.	Avg.	Avg.	Bearing	Slope
04/18/00		56.55	56.56	56.70				56.60	61.49	N80°W	0.0025
06/12/00		56.70	56.72	56.85				56.76	61.34	N75°W	0.0025
07/14/00		56.39	56.42	56.53				56.45	61.65	N72°W	0.0024
09/01/00		55.75	55.76	55.90				55.80	62.29	N81°W	0.0025
12/01/00		56.16	56.17	56.30	56.13	56.21	55.74	56.19	61.73	N83°W	0.0023
02/22/01		56.75	56.76	56.89	56.69	56.77	56.50	56.77	61.12	N83°W	0.0023
05/15/01		56.60	56.62	56.75	56.53	56.63	56.38	56.63	61.26	N78°W	0.0024
08/15/01		55.29	55.30	55.44	55.25	55.33	55.06	55.32	62.57	N77°W	0.0010
11/16/01		54.94	54.93	55.07	54.88	54.97	54.87	54.96	62.90	N87°W	0.0021

Date		Elevation of Groundwater (Wells Resurveyed According to AB 2886 on 1/14/02)									
		MW-1	MW-2	MW-3	MW-4	MW-5	MW-101	Avg. Elev.	DTW	Gradient	Gradient
		GWL Elev.	GWL Elev.	GWL Elev.	GWL Elev.	GWL Elev.	GWL Elev.	Wtr. Table	Avg.	Bearing	Slope
01/14/02		57.72	57.73	57.87	57.65	57.75	57.69	57.74	62.40	S89°W	0.0019
03/14/02		58.17	58.19	58.33	58.12	58.21	58.24	58.20	61.94	N81°W	0.0018
06/28/02		57.70	57.73	57.84	57.63	57.72	57.68	57.72	62.42	N68°W	0.0019
09/23/02		56.13	56.13	56.27	56.09	56.17	56.12	56.16	63.99	N83°W	0.0013
12/30/02		56.94	56.95	57.08	56.88	56.97	56.95	56.96	63.18	N80°W	0.0015
03/06/03		57.35	57.35	57.50	57.30	57.38	57.37	57.38	62.77	N82°W	0.0012
06/05/03		56.92	56.95	57.08	56.87	56.96	56.95	56.96	63.19	N74°W	0.0026
09/06/03		55.45	55.43	55.57	55.38	55.50	55.42	55.47	64.68	N89°W	0.0020
12/09/03		55.43	55.47	55.59	55.37	55.49	55.45	55.47	64.67	N62°W	0.0029
03/13/04		56.42	56.43	56.59	56.38	56.47	56.44	56.46	63.69	N74°W	0.0029
05/07/04		55.91	55.90	56.07	55.86	55.95	55.92	55.94	64.21	N83°W	0.0028
08/12/04		54.17	54.15	54.30	54.13	54.22	54.17	54.19	65.95	N82°W	0.0022
11/26/04		54.06	54.05	54.21	53.99	54.09	54.06	54.08	66.06	N83°W	0.0026
02/16/05		55.06	55.05	55.17	54.96	55.05	55.03	55.06	65.09	N85°W	0.0018
							Historical Average =	**56.71**	**62.67**	**N73°W**	**0.0019**

Table 2
Vertical Groundwater Gradient Calculations
City of Escalon - Former ARCO Mini Mart
(feet above MSL)

Date	Well Pair	Vert Head	Vert Dist	Vertical Gradient
1-Dec-00	MW-1 MW-101	-0.44	19.23	-0.0228
22-Feb-01	MW-1 MW-101	-0.27	19.52	-0.0138
15-May-01	MW-1 MW-101	-0.24	19.45	-0.0123
15-Aug-01	MW-1 MW-101	-0.24	18.79	-0.0127
16-Nov-01	MW-1 MW-101	-0.09	18.62	-0.0047
14-Jan-02	MW-1 MW-101	-0.05	20.01	-0.0023
14-Mar-02	MW-1 MW-101	0.06	20.23	0.0027
28-Jun-02	MW-1 MW-101	-0.04	20.00	-0.0018
23-Sep-02	MW-1 MW-101	-0.02	19.21	-0.0011
30-Dec-02	MW-1 MW-101	0.00	19.62	-0.0001
6-Mar-03	MW-1 MW-101	0.01	19.82	0.0005
5-Jun-03	MW-1 MW-101	0.01	19.61	0.0005
6-Sep-03	MW-1 MW-101	-0.05	18.87	-0.0024
9-Dec-03	MW-1 MW-101	0.00	18.86	-0.0002
13-Mar-04	MW-1 MW-101	0.00	19.36	-0.0002
7-May-04	MW-1 MW-101	-0.01	19.10	-0.0006
12-Aug-04	MW-1 MW-101	-0.02	18.23	-0.0010
26-Nov-04	MW-1 MW-101	-0.02	18.18	-0.0011
16-Feb-05	MW-1 MW-101	-0.01	18.68	-0.0008

Table 3: Summary of Analytical Data - Tank and Trench Samples

City Of Escalon
1305 Escalon Ave
Escalon, California
Project No. 750.2

Tank/Trench Sample Analytical Data														
Date Sampled	Sample	Sample Depth Feet	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Total Xylenes mg/kg	TPH Gasoline mg/kg		MTBE mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	TBA mg/kg	PCE
09/09/98	**Tank1-N**	**21'**	-	-	-	-	-		**0.54**	ND<50	ND<50	ND<50	ND<200	NT
12/09/98	**RS-1**	**16.5'**	ND<0.005	**0.0057**	ND<0.005	**0.21**	ND<1		**0.12**	ND<5	ND<5	ND<5	ND<20	NT
12/09/98	**RS-2**	**13.5'**	**0.039**	**0.055**	**0.0076**	**0.051**	ND<1		**6.7**	ND<5	ND<5	ND<5	ND<20	NT
12/09/98	**RS-3**	**11.0**	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<1		ND<0.01	ND<5	ND<5	ND<5	ND<20	NT
12/09/98	**RS-4**	**19.5**	**0.055**	**2.7**	**3**	**12**	**180**		**0.025**	ND<5	ND<5	ND<5	ND<20	NT
12/09/98	**RS-5**	**14.5**	**2.644**	**220**	**140**	**730**	**6200**		**8**	ND<5	ND<5	ND<5	ND<20	NT

Table 4: Summary of Analytical Data - Soil Borings

City Of Escalon
1305 Escalon Ave
Escalon, California
Project No. 750.2

Summary of Soil Boring Analytical Data														
Date Sampled	Borehole	Sample Depth Feet	Benzene ug/Kg	Toluene ug/Kg	Ethyl Benzene ug/Kg	Total Xylenes ug/Kg	TPH Gasoline mg/Kg	TEPH Diesel mg/Kg	MTBE ug/Kg	DIPE ug/Kg	ETBE ug/Kg	TAME ug/Kg	TBA ug/Kg	PCE ug/Kg
06/19/96	B-1	2	ND<5	ND<5	ND<5	ND<5	ND<1	ND<2	ND<50					
		5	ND<5	ND<5	ND<5	ND<5	ND<1	ND<1	ND<50					
03/19/97	ARCO 2-4	15	ND<5	ND<5	ND<5	ND<5	ND<1	ND<1	ND<50					
		25	ND<5	ND<5	ND<5	ND<5	ND<1	ND<1	ND<50					
		40	ND<5	ND<5	ND<5	ND<5	ND<1	ND<1	ND<50					
		45	ND<5	ND<5	ND<5	ND<5	ND<1	ND<1	ND<50					
		50	ND<5	ND<5	ND<5	ND<5	ND<1	ND<1	ND<50					
02/12/99	HP-1	11-11.5	68	163	14	188	2.0		20,000	ND<500	ND<500	ND<500	8,700	NT
		20.5-21	33,700	410,000	160,000	860,000	10,300		58,000	ND/2500	ND/2500	ND/2500	ND<10000	NT
		31-31.5	ND<3	5.0	ND<3	9.0	ND<1		360	ND<50	ND/50	ND/50	ND<200	NT
		36-36.5	7.0	21	6.0	31	ND<1		810	ND<50	ND<50	ND<50	680	NT
		46-46.5	611	1,120	146	717	8.0		880	ND<50	ND<50	ND<50	230	NT
		56-56.5	ND<3	4.0	ND<3	5.0	ND<1		16	ND<5	ND<5	ND<5	67	NT
		61-61.5	10	ND<3	ND<3	6.0	ND<1		14	ND<5	ND<5	ND<5	ND<20	NT
02/23/99	HP-2	20.5-21	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		55.5-56	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		60.5-61	ND<3	ND<3	ND<3	ND<3	ND<1		19	ND<5	ND<5	ND<5	ND<20	NT
02/23/99	HP-3	20.5-21	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		55.5-56	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		60-60.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
02/12/99	HP-4	10.5-11	ND<3	ND<3	ND<3	ND<3	ND<1		8.9	ND<5	ND<5	ND<5	ND<20	NT
		21-21.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		36-36.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		45.5-46	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		56-56.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		61-61.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
02/12/99	HP-5	21-21.5	6.0	16	4.0	16	ND<1		510	ND<25	ND<25	ND<25	320	NT
		35.5-36	ND<3	ND<3	ND<3	4.0	ND<1		27	ND<5	ND<5	ND<5	44	NT
		45.5-46	6.0	11	ND<3	12	ND<1		35	ND<5	ND<5	ND<5	21	NT
		51-51.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		56-56.5	ND<3	ND<3	ND<3	ND<3	ND<1		5.1	ND<5	ND<5	ND<5	21	6.9
		61-61.5	ND<3	ND<3	ND<3	ND<3	ND<1		6.6	ND<5	ND<5	ND<5	ND<20	NT
02/23/99	HP-6	20.5-21	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		45.5-46	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		55.5-56	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		60.5-61	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT

Date Sampled	Borehole	Sample Depth Feet	Benzene ug/Kg	Toluene ug/Kg	Ethyl Benzene ug/Kg	Total Xylenes ug/Kg	TPH Gasoline mg/Kg	TEPH Diesel mg/Kg	MTBE ug/Kg	DIPE ug/Kg	ETBE ug/Kg	TAME ug/Kg	TBA ug/Kg	PCE ug/Kg
07/30/99	MW-1	25	66	186	26	159	3.0		3,200	ND<250	ND<250	ND<250	ND<1,000	NT
		35	ND<3	4.0	ND<3	6.0	ND<1		2,300	ND<250	ND<250	ND<250	ND<1,000	NT
		45	83	18	ND<3	16	ND<1		530	ND<50	ND<50	ND<50	ND<200	NT
		55	ND<3	ND<1	ND<3	9.0	ND<1		7	ND<5	ND<5	ND<5	41	NT
		70	ND<3	ND<1	ND<3	ND<3	ND<1		7	ND<5	ND<5	ND<5	ND<20	NT
04/29/99	MW-2	15.5-16	ND<5	ND<5	ND<5	ND<5	ND<1		150	ND<5	ND<5	ND<5	ND<20	NT
		30.5-31	ND<5	ND<5	ND<5	ND<5	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		45-45.5	ND<5	ND<5	ND<5	ND<5	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		60.5-61	ND<5	ND<5	ND<5	ND<5	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		75.7-76	ND<5	ND<5	ND<5	ND<5	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
06/11/99	MW-3	31-31.5	ND<5	ND<5	ND<5	ND<5	ND<1		ND<50					
		46-46.5	ND<5	ND<5	ND<5	ND<5	ND<1		ND<50					
		61-61.5	ND<5	ND<5	ND<5	ND<5	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		76-76.5	ND<5	ND<5	ND<5	ND<5	ND<1		ND<50					
04/29/99	VEW-1	15.5-16	ND<5	ND<5	ND<5	ND<5	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		25.5-26	ND<5	ND<5	ND<5	5.5	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		35.5-36	ND<5	ND<5	ND<5	ND<5	ND<1		8	ND<5	ND<5	ND<5	ND<20	NT
		45.5-46	ND<5	ND<5	ND<5	ND<5	ND<1		10	ND<5	ND<5	ND<5	ND<20	NT
		55.5-56	ND<5	ND<5	ND<5	ND<5	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
10/18/00	MW-4	20.5-21	ND<3	ND<3	ND<3	ND<3	ND<1		ND<50					
		30.5-31	ND<3	ND<3	ND<3	ND<3	ND<1		ND<50					
		50.5-51	ND<3	ND<3	ND<3	ND<3	ND<1		ND<50					
10/19/00	MW-4	60.5-61	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		70.5-71	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
10/19/00	MW-5	20.5-21	ND<3	ND<3	ND<3	ND<3	ND<1		ND<50					
		30.5-31	ND<3	ND<3	ND<3	ND<3	ND<1		ND<50					
		50.5-51	ND<3	ND<3	ND<3	ND<3	ND<1		ND<50					
		60.5-61	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
		65.5-66	ND<3	ND<3	ND<3	ND<3	<25	4230*	ND<5	ND<5	ND<5	ND<5	ND<20	NT
10/16/00	SB-101	75.5-76	ND<3	ND<3	ND<3	ND<3	ND<1		ND<50					
		95.5-96	ND<3	ND<3	ND<3	ND<3	ND<1		ND<50					
		105.5-106	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
10/17/00	SB-101	115-115.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<5	ND<5	ND<5	ND<5	ND<20	NT
09/05/03	SB-1	19.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<10	ND<10	ND<10	ND<10	ND<800	NT
		44.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<10	ND<10	ND<10	ND<10	ND<800	NT
		54.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<10	ND<10	ND<10	ND<10	ND<800	NT
09/05/03	SB-2	14.5	ND<1000	1,870	30,400	194,000	3,130		ND<10	ND<10	ND<10	11	3,400	NT
		19.5	ND<6	15.1	8.5	110	20.5		ND<10	ND<10	ND<10	ND<10	ND<800	NT
		34.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<10	ND<10	ND<10	ND<10	ND<800	NT
		44.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<10	ND<10	ND<10	ND<10	ND<800	NT
		54.5	ND<3	ND<3	ND<3	ND<3	ND<1		ND<10	ND<10	ND<10	ND<10	ND<800	NT

Table 5: Summary of Groundwater Analytical Data

City of Escalon-Former Arco Mini Mart
1305 Escalon Ave.
Escalon, CA
Project No. 750.2

Wells	Date	Benzene ug/L	Toluene ug/L	Ethyl Benzene ug/L	Total Xylenes ug/L	TPH Gasoline ug/L	MTBE ug/L	ETBE ug/L	DIPE ug/L	TAME ug/L	TBA ug/L	EDB	1,2-DCA
MW-1	04/18/00	62	42	10	57	516	220	ND<5	ND<5	ND<5	ND<20	ND<5	ND<5
	07/14/00	9	10	0.9	6	74	23	ND<5	ND<5	ND<5	ND<20		
	09/01/00	8	5	0.8	7	76	62	ND<10	ND<10	ND<10	ND<40		
	12/01/00	8	10	2	15	115	58	ND<5	ND<5	ND<5	ND<20		
	02/22/01	9	14	2	20	163	55	ND<5	ND<5	ND<5	ND<20	ND<5	ND<5
	05/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	71	ND<5	ND<5	ND<5	ND<20		
	08/15/01	1.3	6.2	0.98	20	72	51	ND<5	ND<5	ND<5	ND<50		
	11/16/01	1.9	6.6	2.1	30.4	186	6.2	ND<5	ND<5	ND<5	ND<20		
	03/14/02	0.9	1.6	0.7	9.2	72	80	ND<5	ND<5	ND<5	ND<20		
	06/28/02	ND<0.3	0.4	0.8	19.4	139	ND<5	ND<5	ND<5	ND<5	ND<20		
	09/23/02	ND<0.3	ND<0.3	ND<0.3	1.2	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	12/30/02	ND<0.3	ND<0.3	ND<0.3	0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	03/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	06/05/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<20		
	09/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	12/09/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	03/13/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	05/07/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	08/12/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	11/26/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	02/16/05	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<50	NT	NT	NT	NT	NT		
MW-2	04/18/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20	ND<5	ND<5
	07/14/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	09/01/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	12/01/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	02/22/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20	ND<5	ND<5
	05/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	08/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND<50	ND<5	ND<5	ND<5	ND<5	ND<50		
	11/16/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		

Wells	Date	Benzene	Toluene	Ethyl	Total	TPH	MTBE	ETBE	DIPE	TAME	TBA	EDB	1,2-DCA
		ug/L	ug/L	Benzene	Xylenes	Gasoline	ug/L	ug/L	ug/L	ug/L	ug/L		
				ug/L	ug/L	ug/L							
MW-2	03/14/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	06/28/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	09/23/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	12/30/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	03/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	06/05/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<20		
	09/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	12/09/03	ND<0.3	ND<0.3	ND<0.3	**0.3**	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	03/13/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	05/07/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	08/12/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	11/26/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	02/16/05	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<50	NT	NT	NT	NT	NT		
MW-3	04/18/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20	ND<5	ND<5
	07/14/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	09/01/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	12/01/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	02/22/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20	ND<5	ND<5
	05/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	08/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND<50	ND<5	ND<5	ND<5	ND<5	ND<50		
	08/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	03/14/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	06/28/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	09/23/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	12/30/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	03/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	06/05/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<20		
	09/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	12/09/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	03/13/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	05/07/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	08/12/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	11/26/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	02/16/05	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<50	NT	NT	NT	NT	NT		
MW-4	12/01/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	02/22/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20	ND<5	ND<5

Wells	Date	Benzene	Toluene	Ethyl	Total	TPH	MTBE	ETBE	DIPE	TAME	TBA	EDB	1,2-DCA
		ug/L	ug/L	Benzene	Xylenes	Gasoline	ug/L	ug/L	ug/L	ug/L	ug/L		
				ug/L	ug/L	ug/L							
MW-4	05/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	08/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND<50	ND<5	ND<5	ND<5	ND<5	ND<50		
	11/16/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	03/14/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	06/28/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	09/23/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	12/30/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	03/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	06/05/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<20		
	09/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	12/09/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	03/13/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	05/07/04	ND<0.3	**0.5**	ND<0.3	**0.7**	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	08/12/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	11/26/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	02/16/05	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<50	NT	NT	NT	NT	NT		
MW-5	12/01/00	ND<0.3	ND<0.3	ND<0.3	ND<0.3	**177**	ND<5	ND<5	ND<5	ND<5	ND<20		
	02/22/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	**209**	ND<5	ND<5	ND<5	ND<5	ND<20	ND<5	ND<5
	05/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	**354**	ND<5	ND<5	ND<5	ND<5	ND<20		
	08/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND<50	ND<5	ND<5	ND<5	ND<5	ND<50		
	11/16/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	**6.1**	ND<5	ND<5	ND<5	ND<20		
	03/14/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	06/28/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	09/23/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	12/30/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	03/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	06/05/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<20		
	09/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	12/09/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	03/13/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	05/07/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	08/12/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	11/26/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	02/16/05	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<50	NT	NT	NT	NT	NT		
MW-101	12/01/00	**3**	**45**	**14**	**84**	**852**	**54**	ND<5	ND<5	ND<5	ND<20		
	02/22/01	ND<0.3	**0.4**	ND<0.3	**0.9**	**51**	ND<5	ND<5	ND<5	ND<5	ND<20	ND<5	ND<5

Wells	Date	Benzene	Toluene	Ethyl	Total	TPH	MTBE	ETBE	DIPE	TAME	TBA	EDB	1,2-DCA
		ug/L	ug/L	Benzene	Xylenes	Gasoline	ug/L	ug/L	ug/L	ug/L	ug/L		
				ug/L	ug/L	ug/L							
MW-101	05/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	08/15/01	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND<50	ND<5	ND<5	ND<5	ND<5	ND<50		
	11/16/01	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	03/14/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	06/28/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	09/23/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<5	ND<5	ND<5	ND<5	ND<20		
	12/30/02	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	03/07/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<10		
	06/05/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<1	ND<5	ND<5	ND<5	ND<20		
	09/06/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	12/09/03	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	03/13/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	05/07/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	08/12/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	11/26/04	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20		
	02/16/05	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<50	NT	NT	NT	NT	NT		

ND= non detect. N/A=Not tested.
ug/L=micrograms per liter(parts per billion)

Table 6: Summary of Groundwater Parameters

City of Escalon
1305 Escalon Avenue
Escalon, California
Project No. 750.2

Monitoring Well	MW-1					MW-2					MW-3				
	pH	E.C.	°F	ORP	DO	pH	E.C.	°F	ORP	DO	pH	E.C.	°F	ORP	DO
Date															
04/18/00				118					165					156	
07/14/00				173					172					184	
02/22/01				65					88					190	
05/15/01				83					88					118	
08/15/01				156					160					118	
11/16/01				66					85					129	
03/14/02	7.11	742	66.6	82		7.80	651	66.6	99		7.16	731	67.6	190	
06/28/02	7.12	699	68.2	156		7.18	602	67.8	111.5		7.17	669	68.2	112.3	
09/23/02	7.38	640	68.9	50		7.27	619	68.4	62.1		7.30	719	72.0	89.4	
12/30/02	7.21	663	66.6	38.3		7.27	579	66.6	33.1		7.04	701	66.6	30.6	
03/06/03	7.20	697	67.1	55		7.09	537	66.92	67		7.05	717	67.1	49	
06/06/03	7.37	716	67.5	87	1.86	7.39	556	67.46	92	1.73	7.50	733	67.64	81	2.51
09/06/03	7.41	733	68.2	45	3.98	7.52	663	68.9	34.7	4.16	7.35	754	67.1	54.1	4.82
12/09/03	7.19	717	65.5	115.1	4.02	7.41	680	66.38	99.2	3.45	7.20	766	66.02	112	3.37
03/13/04	7.56	636	66.9	23.9	4.21	7.61	542	67.28	23.5	4.10	7.36	652	67.28	14.7	6.38
05/07/04	7.14	682	67.5	28.8	5.23	7.25	580	67.46	34.3	4.52	7.12	701	67.28	33.1	5.18
08/12/04	7.03	562	67.3	92.0	2.40	7.17	602	67.46	82	3.20	7.03	690	67.82	48	5
11/26/04	7.72	592	66.4	60.5	3.67	7.79	601	66.02	53.4	3.80	7.80	611	66.2	56.8	4.52
02/16/05	7.00	834	66.7	247	4.10	7.14	670	65.84	219	4.10	7.00	811	66.38	227	3.70

Monitoring Well	MW-4					MW-5					MW-101				
	pH	E.C.	°F	ORP	DO	pH	E.C.	°F	ORP	DO	pH	E.C.	°F	ORP	DO
Date															
04/18/00															
07/14/00															
02/22/01				68					87					42	
05/15/01				63					71					74	
08/15/01				175					170					224	
11/16/01				63					62					68	
03/14/02	7.08	490	66.6	65		6.99	777	66.7	44		8.12	583	66.6	42	
06/28/02	7.06	683	67.8	93.2		6.94	669	67.8	98.1		7.26	515	67.8	86.8	
09/23/02	7.15	707	68.4	69.9		7.2	584	68.7	49.6		7.46	549	68.7	66.5	
12/30/02	7.08	653	66.7	41.4		7.01	564	66.9	40.0		7.35	547	66.4	35.2	
03/06/03	7.14	725	66.7	89		7.06	584	67.1	80		7.37	559	66.6	41	
06/06/03	7.34	726	67.1	87	2.30	7.24	628	67.28	90	2.00	7.47	581	67.1	84	1.87
09/06/03	7.24	722	67.5	90.2	4.17	7.17	636	68	64.9	4.22	7.54	639	67.6	44.3	4.02
12/09/03	7.34	588	66.2	70	3.80	7.20	553	66.38	102	3.51	7.42	610	66.0	101.4	3.28
03/13/04	7.10	618	67.1	23.5	4.20	7.25	539	67.46	23.6	3.88	7.52	524	67.1	21.9	4.17
05/07/04	7.25	640	67.5	40.7	7.25	7.24	584	67.64	39.9	4.74	7.27	558	67.5	21.2	4.25
08/12/04	6.97	550	68.0	74	3.10	6.98	508	67.82	82	3.00	7.25	512	67.3	81	2.8
11/26/04	8.43	226	66.9	29.8	3.98	7.89	362	67.28	50.8	3.53	7.79	533	66.9	56.7	3.89
02/16/05	6.90	763	66.7	235	3.60	6.90	649	67.1	236	3.70	7.12	655	66.4	220	3.50

Table 7: 2001 Contaminant Mass Estimate Calculations (TPH-G)

City of Escalon - Former Arco Mini Mart

1305 Escalon Avenue

Project No. 750.2

zone	matrix type	depth - ft	thickness	area * (ft.)	volume ft3	density ** lbs/ft3	conv. lbs/kg	cont. load mg/kg	conv. mg/kg	cont. kg
#1	sand & silt	0 - 25	25	3407	77885	110	0.4536	1,154	0.000001	4485
#2	sand & silt	25 - 50	25	2248	56200	110	0.4536	1.333	0.000001	3.7
#3	sand	50 - 65	15	2958	44370	120	0.4536	0.5	0.000001	1.2

zone	matrix type	depth - ft	thickness	area * (ft.)	volume ft3	vol of H2O*** ft3	vol H2O liters	cont. load**** mg/L	cont. load kg/ L	cont. kg
	water	62 - 89	27	4896	132192	46267	1310139	1.705	0.000001705	2.23

total	**kg =**	**4491.80**
	lb =	**9904.41**
	gal =	**1597.49**

Notes:

* = Area calculated by CAD software. Excavation volume of 270 cubic yards of soil subtracted from Zone 1.

** = estimated from Watson and Burnett, 1995

*** Vol. H2O =volume of zone x porosity (30%)

****average zone concentration

Table 8: 2005 Contaminant Mass Estimate Calculations (TPH-G)

City of Escalon - Former Arco Mini Mart

1305 Escalon Avenue

Project No. 750.2

zone	matrix type	depth - ft	thickness	area * (ft.)	volume ft3	density ** lbs/ft3	conv. lbs/kg	cont. load mg/kg	conv. mg/kg	cont. kg
#1	sand & silt	10 to 25	15	160	400	110	0.4536	1,200	0.000001	24
#2	sand & silt	15 to 25	10	250	1900	110	0.4536	800	0.000001	76
#3	sand & silt	20 to 25	5	600	2900	110	0.4536	400	0.000001	58
								total	**kg =**	**158**
									lb =	**348**
									gal =	**56**

* = Area calculated by CAD software. Excavation volume of 270 cubic yards of soil subtracted from Zone 1.

** = estimated from Watson and Burnett, 1995

Vol. H2O =volume of zone x porosity (30%)

Table 9: Gallons of TPH-Gas removed by Internal Combustion Engine (I.C.)

City of Escalon
1305 Escalon, Ave.
Escalon, CA
Project No.: 750.3

Date/Time	Cum. Days	days in period	Vapor Well #	Actual OVM (ppm)	Adjusted OVM (ppm) *	Avg. OVM for Period	Lab data (ppm)	Lab data (mg/l)	Avg. Vapor Concentration (mg/L)	Air Flow (cfm)	Avg. Air Flow (CFM) for Period	removal lbs./day	Cum. lbs.	vapor extracted gal/day	Cum. gallons removed
I.C.. Startup															
2/5/2002 10:08	0.00		3	301	1204		1100	4.6		60					
2/14/2002 9:54	8.99		3	257	1028					35					
2/27/2002 10:35	22.02	22.02	3	96	384	872			3.62	45	47	15.2	334	2.4	54
IC Shutdown to high emmisions.															
IC Restart															
4/22/2002 13:00	22.02		4							25					
4/30/2002 10:44	29.93		4	863	3452		4900	20		20					
5/18/2002 15:10	48.11	26.09	4							20	22	39.0	1,351	6.3	218
I.C. Failed nite of the 18th															
I.C. Restart															
6/14/2002 17:10	48.11		4							50					
6/18/2002 7:45	51.72		4	525	2100		2400	9.80		32					
7/18/2002 9:19	81.78		4	326	1304		1300	5.50		50					
8/14/2002 8:30	108.75	60.64	4	346			1000	4.30	6.53	45	44	26.0	2,927	4.2	472
8/14/2002 8:30	108.75			346			1000	4.30		45					
9/17/2002 7:15	142.70		4	342			610	2.50		38					
10/25/2002 11:35	180.88		4	364			610	2.50		55					
11/14/2002 13:36	200.96		4	435			480	2.00		50					
12/10/2002 8:30	226.75	118.00	4	228			360	1.50	2.56	47	47	10.8	4,203	1.7	678
Shut VETS down (Spike Test)															
VETS Restart															
1/1/2003 10:40	226.75		4	197											
1/1/2003 11:40	226.79		4	238			320	1.30		50					
1/2/2003 8:00	227.64		4	185			450	1.90		45					
1/27/2003 8:00	252.64		4	134			210	0.89		45					
1/31/2003 8:35	256.66	29.91	4	168					1.40	50	48	6.0	4,381	1.0	707
I.C. Restart															
VETS Restart															
12/9/2003 8:45	256.66		1&2	18.5			210	0.87		47					
12/10/2003 12:32	257.82		1&2	18.5			18	0.07		47					
12/23/2003 5:00	270.50		1&2	17.9			18	0.07		45					
1/14/2004 9:00	292.67		1 thru 4	14.9					0.34	55	49	1.5	4,381	0.2	707

* OVM readings adjusted by a factor of 4.0 from 2/5/02 thru 12/22/01 to bring them into line with lab data.

Table 10: Gallons of TPH-Gas Removed by SVE System

City of Escalon
1305 Escalon, Ave.
Escalon, CA
Project No.: 750.2

Date/Time	Cum. Days	days in period	Vapor Well #	Actual OVM (ppm)	Adjusted OVM (ppmv) *	Avg. OVM for Period	Lab data (ppmv)	Lab data (mg/L)	Avg. Vapor Concentration (mg/L)	Air Flow (cfm)	Avg. Air Flow (CFM) for Period	removal lbs./day	Cum. lbs.	vapor extracted gal/day	Cum. gallons removed
SVE Startup															
9/24/2004 8:10	0.0		1,2,3,4 (30%)	36.9	48.9		56	0.230		182					
9/27/2004 8:00	3.0		1,2 (50%) 3,4 (20%)	42.8	56.7					195					
10/4/2004 7:00	10.0		1,2 (50%) 3,4 (20%)	19.6	26.0		26	0.100		185					
10/13/2004 7:15	19.0		3,4 (100%)	41.3	54.7					183					
10/20/2004 7:48	26.0		3,4 (100%) 1,2 (10%)	74.3	98.4		110	0.440		160					
10/25/2004 7:45	31.0	31.0	1,2 (60%) 3,4 (40%)	63.2	83.7	61.4			0.257	160	177.5	4.0	123	0.6	20
11/3/2004 8:00	40.0		3,4 (100%)	46.7	61.9					180					
11/9/2004 7:30	46.0		1,2 (35%) 3,4 (50%)	32.3	42.8					140					
11/22/2004 11:15	59.1		1,2 (10%) 3,4 (60%)	68.9	91.3		67	0.270		128					
11/30/2004 15:00	67.3	27.3	2,4 (100%)	232.9	308.6	126.1			0.270	120	142.0	3.4	215	0.5	55
System Down for Modifications 11/30/04 thru 12/16/04															
12/17/2004 9:30	67.3														
12/21/2004 14:35	71.5		1 thru 4 (100%)	57.5	76.2					185					
1/4/2005 11:30	85.4		1,2 (50%) 3,4 (50%)	37.8	50.1					168					
1/4/2005 13:00	85.4		3,4 (100%)	68.7	91.0		83	0.340		155					
1/17/2005 12:03	98.4		3,4 (100%)	66.7	88.4		86	0.350		151					
1/28/2005 10:29	109.3	42.0	1,2 (100%) 3,4 (20%)	27.5	36.4	68.4			0.345	149	161.6	4.9	420	0.8	122
2/4/2005 9:43	116.3		3,4 (100%)	85.6	113.4					130					
2/9/2005 9:39	121.3		1 thru 4 (50%)	47.2	62.5					135					
2/15/2005 10:45	127.3		3,4 (100%)	58.3	77.2					138					
2/22/2005 10:00	134.3		3,4 (100%)	68.4	90.6		80	0.330		132					
2/28/2005 16:30	140.6	24.3	1,2 (100%)	8.1	10.7	70.9			0.330	140	135.0	3.9	514	0.6	205
3/7/2005 10:37	147.3		3,4 (100%)	51.9	68.8					129					
3/17/2005 5:30	157.1		3,4 (100%)	49.8	66.0		56	0.230		140					
3/24/2005 8:44	164.3		3,4 (100%)	55.2	73.1					140					
3/30/2005 12:47	170.4		3,4 (100%)	61.3	81.2										
4/12/2005 12:15	183.4	36.1	3,4 (100%)	63.9	84.7	74.8	67	0.280	0.255	140	137.3	3.1	625	0.5	306

* OVM readings adjusted by a factor of 1.325 to bring them into line with lab data.

Table 11: Summary of Well Construction

City of Escalon-Former Arco Mini Mart
1305 Escalon Ave.
Escalon, CA
Project No. 750.2

Well/Boring Type	Well/Boring Number	Status	Date Drilled	Total Depth (ft)	Boring Diameter (in)	Well Casing Diameter (in)	Casing Type	Slot Size (in)	Sand Type	Well Screen		Filter Pack		Annular Seal		Grout Seal	
										From	To	From	To	From	To	From	To
Monitoring	MW-1		7/30/1999	75	8.5	2	PVC	0.020	#3	75	55	75	53				
					10	2	PVC	0.020	#3					53	50	50	S
Monitoring	MW-2		4/29/1999	75	8	2	PVC	0.020	#3	75	55	75	53	53	51	51	3
Monitoring	MW-3		6/11/1999	76	8	2	PVC	0.020	#3	75	55	75	53	53	51	51	3
Monitoring	MW-4		10/18/2000	80	8	2	PVC	0.020	#3	78	63	78	60	60	58	58	S
Monitoring	MW-5		10/19/2000	76	8	2	PVC	0.020	#3	75.0	60	75	58	58	55.5	55.5	S
Monitoring	MW-101		10/18/2000	95	6	2	PVC	0.020	#3	87	85	89	86	86	83	83	S
Vapor Extraction	VEW-1		4/29/1999	55	10	4	PVC	0.040	Pea Gravel	55	40	55	38	38	36	36	5
Vapor Extraction	VEW-2		4/29/1999	27	10	4	PVC	0.040	Pea Gravel	27	10	27	8.5	8.5	6.5	6.5	5
Vapor Extraction	VEW-3		7/30/1999	55	10	4	PVC	0.040	Pea Gravel	54	39	55	37	37	35	35	S
Vapor Extraction	VEW-4		7/30/1999	27	10	4	PVC	0.040	Pea Gravel	27	12	27	10	10	8	8	S

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific
E-mail to:samplereceiving@airtoxics.com

@ AIR TOXICS LTD.
AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0504240

Work Order Summary

CLIENT:	Mr. Project Manager Geological Technics Inc. 1101 7th Street Modesto, CA 95354	**BILL TO:**	Mr. Accounts Payable Geological Technics Inc. 1101 7th Street Modesto, CA 95354
PHONE:	209-522-4119	**P.O. #**	086285E
FAX:	209-522-4227	**PROJECT #**	750.2 COE (ARCO)
DATE RECEIVED:	04/13/2005	**CONTACT:**	Taryn Badal
DATE COMPLETED:	04/26/2005		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	Effluent	Modified TO-3	Tedlar Bag
02A	Influent	Modified TO-3	Tedlar Bag
03A	Lab Blank	Modified TO-3	NA
04A	LCS	Modified TO-3	NA
04B	LCS	Modified TO-3	NA

CERTIFIED BY: Linda J. Frumarn DATE: 04/26/05

Laboratory Director

Certfication numbers: AR DEQ - 03-084-0, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/04, Expiration date: 06/30/05
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-3
Geological Technics
Workorder# 0504240

Two 1 Liter Tedlar Bag samples were received on April 13, 2005. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with photo ionization and flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline and correspond to the range of hydrocarbons from C5 to C10. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L.

See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

Requirement	*TO-3*	*ATL Modifications*
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.

E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

Summary of Detected Compounds
MODIFIED EPA METHOD TO-3 GC/PID/FID

Client Sample ID: Effluent

Lab ID#: 0504240-01A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0040	0.013	0.046 M	0.15 M
Toluene	0.0040	0.015	0.41 M	1.6 M
Ethyl Benzene	0.0040	0.017	0.018	0.080
Total Xylenes	0.0040	0.017	0.058	0.25
TPH (Gasoline Range)	0.10	0.41	16	63
Methyl tert-butyl ether	0.0040	0.014	0.0051	0.018

Client Sample ID: Influent

Lab ID#: 0504240-02A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Toluene	0.037	0.14	1.0	3.8
Ethyl Benzene	0.037	0.16	1.5	6.5
Total Xylenes	0.037	0.16	15	65
TPH (Gasoline Range)	0.92	3.8	67	280

AIR TOXICS LTD.

Client Sample ID: Effluent

Lab ID#: 0504240-01A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d041318**	**Date of Collection: 4/12/05**	
Dil. Factor:	**4.00**	**Date of Analysis: 4/13/05 07:12 PM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0040	0.013	0.046 M	0.15 M
Toluene	0.0040	0.015	0.41 M	1.6 M
Ethyl Benzene	0.0040	0.017	0.018	0.080
Total Xylenes	0.0040	0.017	0.058	0.25
TPH (Gasoline Range)	0.10	0.41	16	63
Methyl tert-butyl ether	0.0040	0.014	0.0051	0.018

M = Reported value may be biased due to apparent matrix interferences.

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	122	75-150
Fluorobenzene (PID)	107	75-125

AIR TOXICS LTD.

Client Sample ID: Influent

Lab ID#: 0504240-02A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d041317**	**Date of Collection: 4/12/05**	
Dil. Factor:	**37.0**	**Date of Analysis: 4/13/05 06:31 PM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.037	0.12	Not Detected	Not Detected
Toluene	0.037	0.14	1.0	3.8
Ethyl Benzene	0.037	0.16	1.5	6.5
Total Xylenes	0.037	0.16	15	65
TPH (Gasoline Range)	0.92	3.8	67	280
Methyl tert-butyl ether	0.037	0.13	Not Detected	Not Detected

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	118	75-150
Fluorobenzene (PID)	103	75-125

AIR TOXICS LTD.

Client Sample ID: Lab Blank

Lab ID#: 0504240-03A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d041303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/13/05 08:54 AM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0043	Not Detected	Not Detected
Total Xylenes	0.0010	0.0043	Not Detected	Not Detected
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected
Methyl tert-butyl ether	0.0010	0.0036	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	118	75-150
Fluorobenzene (PID)	105	75-125

AIR TOXICS LTD.

Client Sample ID: LCS

Lab ID#: 0504240-04A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d041325b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/13/05 11:26 PM**	

Compound	%Recovery
Benzene	103
Toluene	90
Ethyl Benzene	88
Total Xylenes	93
Methyl tert-butyl ether	77

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (PID)	106	75-125

AIR TOXICS LTD.

Client Sample ID: LCS

Lab ID#: 0504240-04B

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d041324**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/13/05 10:51 PM**	

Compound	%Recovery
TPH (Gasoline Range)	82

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	128	75-150

Geological Technics Inc.

1101 7th Street
Modesto, CA
(209) 522-4119 Fax 522-4227
E-mail: gti@geologicaltechnics.com

0504240 Page 1 of 1

Chain of Custody

Project #: 7502
Client/Project Name: COE (ARCO)
Site Address: 1305 Encino Ave, Escalon, CA
Remarks:
Sampled By: (print and sign name) Gary L. Price

Laboratory Name and Address: A.2 Tanks
Purchase Order # 0800286E
EDF Report: ☐ Yes ☒ No
Turnaround Time: S = Standard
1 day, 2 day, 5 day

	Date	Time	Sample I.D.	No. of Containers	Matrix (Soil, Water, Gas, Other)	Turnaround Time	BTEX	TPH	MTBE	Remarks
01A	4-12-05	1334	Effluent	1	G	S	X	X	X	
02A	4-12-05	1345	Influent	1	G	S	X	X	X	
										* Shipped California Overnite *

Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:
[signature]	4/12/05	1400	Elizabeth Emmons	4/12/05	1400
Elizabeth Emmons	4/12/05	10:30	Shipped Via California Overnight		
			Laura Thomas ATL	4/13/05	920

Please return cooler/ice chest to Geological Technics Inc. Cal Over: D10010052319774

Rev. 12/03